



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,094	08/22/2003	Yasuyuki Kawada	FUJI:270	9865

7590 10/28/2004

ROSSI & ASSOCIATES  
P.O. Box 826  
Ashburn, VA 20146-0826

EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
----------	--------------

1773

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/647,094

Applicant(s)

KAWADA, YASUYUKI

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/22/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Group I, claims 1-13, in the reply filed on 10/8/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4-9 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Litvinov et al. (US 6656613).

Litvinov et al. disclose a magnetic recording medium having a non-magnetic substrate, a Ta seedlayer, a soft magnetic NiFe layer (corresponding to backing layer set forth in claim 12), a second Ta layer and a FeAlN soft magnetic layer (corresponding to the second seed layer). The reference teaches forming a multilayered magnetic recording structure thereon having alternating

layers of Pt or Pd and Co or Co alloys. The reference teaches adding a material such as Cr or SiO<sub>2</sub> to the Pt/Pd and Co based layers (col. 4, lines 13-15 and 34-36; col. 6, lines 2-9).

With respect to claim 6, it is noted that the reference teaches the first layer deposited on the substrate (or underlying layers) is a layer formed from Pt or Pd (see Figures 2 and 3 for example). Thus, it is the Examiner's contention that the first Pt or Pd layer corresponds to the Pt/Pd underlayer set forth in claim 6.

4. Claims 1-2, 4-9, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Maesaka et al. (US 6596418).

Maesaka et al. disclose a magnetic recording medium having a non-magnetic substrate, a Ti bonding layer (corresponding to 1<sup>st</sup> seed layer), a soft magnetic underlayer (corresponding to claimed 2<sup>nd</sup> seed layer), a 20 nm thick Pd underlayer and a multilayered magnetic recording structure formed directly thereon having alternating layers of Pt or Pd and Co or Co alloys wherein each layer in the structure contains boron oxide (see Fig. 1; col. 5, lines 51-53; col. 6, Table 1. The reference teaches adding a material such as Cr or SiO<sub>2</sub> to the Pt/Pd and Co based layers (col. 4, lines 13-15 and 34-36; col. 6, lines 2-9).

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Litvinov et al. (US 6656613).

Litvinov et al. teach all of the limitations of the claims as detailed above, except for the particular amount of SiO<sub>2</sub> contained within the Co and Pt/Pd layers and the use of a backlayer formed from CoZrNb or CoZrTa.

Litvinov et al. teach that the incorporation of SiO<sub>2</sub> in the magnetic recording structure exchange decouples the magnetic grains and also controls grain size (col. 2, lines 11-37). Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal amount of SiO<sub>2</sub> to be introduced into each of the Co and Pt or Pd layers in order to achieve optimal grain size and exchange decoupling. Such an optimization would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to the limitation of claim 13, Litvinov et al. give an example wherein the backlayer is formed from NiFe but the reference teaches the equivalence of NiFe and CoZrNb (see col. 3, lines 29-32). Thus, it would have been obvious to one of ordinary skill in the art to substitute a CoZrNb layer for the NiFe layer taught by Litvinov et al. in column 6, lines 2-8 in view of the equivalence of the two materials.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Litvinov et al. (US 6656613) in view of Hanawa et al. (US 2002/0076579).

Art Unit: 1773

Litvinov et al. teach all of the limitations of the claims as detailed above, except for the use of a second seedlayer formed from NiFeCr, NiFeNbB, or NiFeSi. Instead the reference teaches using a Ta layer and a soft magnetic NiFe layer thereon as a second seedlayer.

Hanawa et al. teach the equivalence of NiFe, NiFeCr and NiFeSi for use as soft magnetic layers in magnetic recording media (See paragraph 37).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute NiFeCr or NiFeSi for the NiFe layer taught by Litvinov et al. in view of the functional equivalence of the materials as taught by Hanawa et al.

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Usui (US 2003/0175555), Tang et al. (US 5750270), and Chen (US 6743503) are cited as art of interest.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

hr  
October 26, 2004